This listing of claims will replace all prior versions and listings of claims in this application.

Listing of Claims

Claims 1-61 (cancelled)

62. (Previously presented) A method for forming a semiconductor structure, the method comprising:

forming a first heterostructure by depositing a relaxed $Si_{1-y}Ge_y$ layer over a first substrate;

bonding said first heterostructure to a second substrate to form a second heterostructure; and

splitting said second heterostructure,

wherein a portion of said first heterostructure remains on said second substrate after the second heterostructure is split.

63. (Currently amended) The method of claim 62, further comprising:

forming at least one of a device layer and a device over said relaxed $Si_{1-y}Ge_y$ layer, after said step of depositing said relaxed $Si_{1-y}Ge_y$ layer.

64. (Previously presented) The method of claim 63, wherein said at least one device layer comprises at least one of strained Si, strained $Si_{1-w}Ge_w$ with $w \neq y$, strained Ge, a III-V compound, and a II-VI compound.

65. (Currently amended) The method of claim 63, further comprising:

removing at least a portion of said relaxed $Si_{1-y}Ge_y$ layer from the second heterostructure, after said step of splitting.

66. (Previously presented) The method of claim 62, further comprising:

forming an insulating layer over said relaxed $Si_{1-y}Ge_y$ layer before said step of bonding to a second substrate.

67. (Previously presented) The method of claim 62, further comprising:

planarizing said relaxed $Si_{1-y}Ge_y$ layer, before said step of bonding to a second substrate.

68. (Previously presented) The method of claim 62, further comprising:
introducing ions into said first heterostructure.

69. (Previously presented) The method of claim 68 wherein said ions comprise at least one of hydrogen H^+ ions and H_2^+ ions.

70. (Previously presented) The method of claim 62, further comprising:
cleaning at least one of said first heterostructure and second substrate, before said step of bonding.

71. (Previously presented) The method of claim 62, wherein splitting said second heterostructure comprises annealing.

72. (Withdrawn) The method of claim 62, wherein splitting said second heterostructure comprises mechanical force.

73. (Currently amended) The method of claim 62, further comprising:
removing at least a portion of said relaxed $Si_{1-y}Ge_y$ layer from the second heterostructure, after said step of splitting.

74. (Currently amended) The method of claim 62, further comprising:
forming at least one of a device layer and a device over said relaxed $Si_{1-y}Ge_y$ layer, after said step of splitting.

75. (Currently amended) The method of claim [[75]]74, wherein said device layer comprises at least one of strained Si, relaxed $Si_{1-y}Ge_y$, strained $Si_{1-w}Ge_w$, strained Ge, a III-V compound, and a II-VI compound.

76. (Previously presented) The method of claim 62, further comprising:
re-using the remaining first heterostructure, after said step of splitting.

77. (Previously presented) The method of claim 62, wherein said first substrate comprises monocrystalline silicon.